Today's Goal

In today's class, we will discuss the basics of sensors, starting with touch, and light sensors.

Firstly, what is a sensor?

Sensors

A sensor is something that detects, or measures something, and allows you to respond to those findings.

In First Lego League, we have many different types of sensors.

Today, we will be focusing on two sensors. Light, and Touch.

Usages for the Light Sensor

- One of the main usages of the light sensor is to detect lines, we can do so by measuring the reflected light intensity.
  - This measures how much light is bouncing back up into the sensor
    - For example black reflects little light, so the value (a percentage) would be low, such as 10 to 20 percent. White reflects more light, so the value should be higher, ideally close to 100%.
- By setting a threshold value, like 50%, and having a black line, and a white table, we can tell the robot to go towards the table if it sees the line, and go towards the line if it sees the table
  - This way we can make small errors, and then correct them, allowing us to follow the edge of the line.

Usages for the Light Sensor
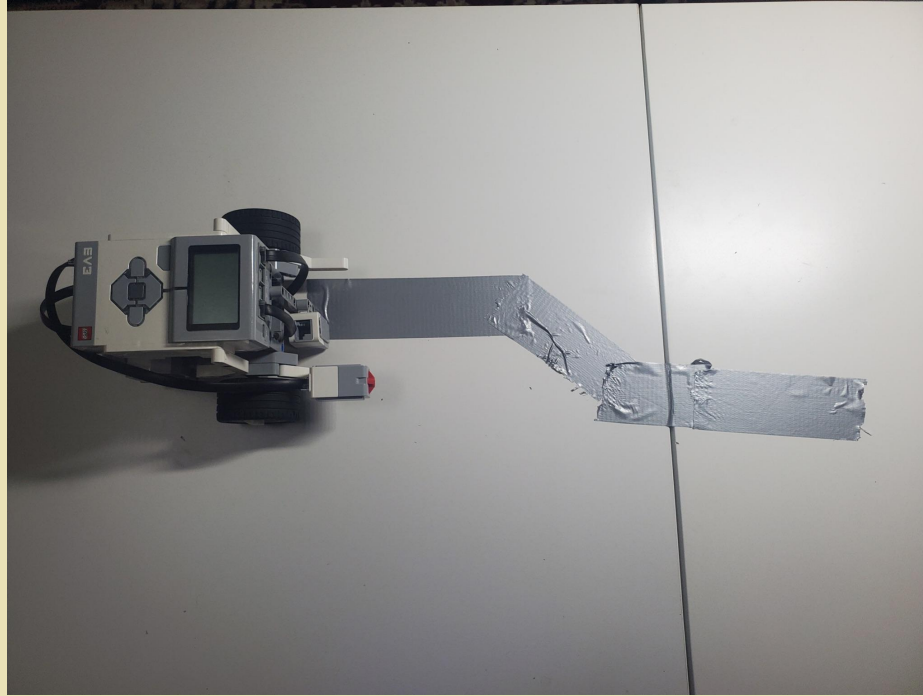
Usages for the Touch Sensor

- With the touch sensor, we can detect two states, 0 if the touch sensor not pressed, and 1 if it is pressed
  - With this information, we can orient our robot along walls, or stop us from running into objects
  - In the code to the right, we go forward until the touch sensor touches the wall, and then the robot moves backwards 2 rotations.